



# OPPORTUNITIES LOST: NIH RESEARCH FUNDING TO NEW YORK'S MEDICAL SCHOOLS

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While the extramural research budget of the National Institutes of Health (NIH) tripled from \$3.25 billion in 1984 to almost \$10 billion in 1998, New York's share of NIH research funding declined by 27%, and New York fell to third place behind California and Massachusetts.

Previously, we traced the drop in New York's share of NIH research funding to a failure of growth in its number of researchers.<sup>1</sup> Here, we examine in greater detail the NIH sources and medical school components of this decline. Unless otherwise indicated, the following presentation relates to 1984–1998 NIH research grant funding, excluding fellowship, training, and contract support.

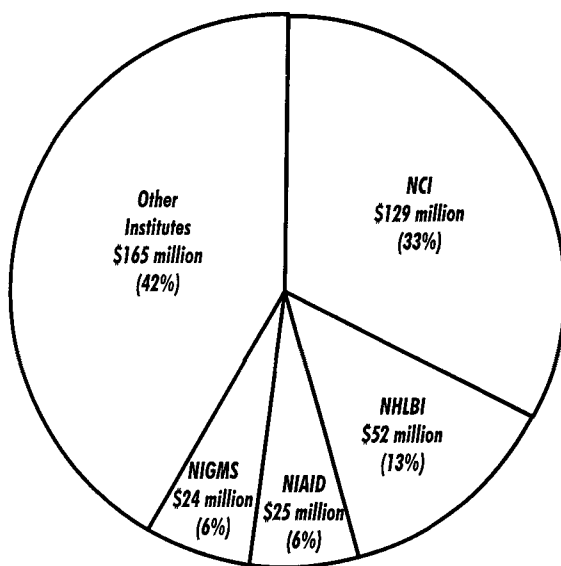
## SOURCES OF STATEWIDE DECLINE

There are 4 of the 18 institutes and 3 centers of NIH that expend almost half of its extramural research funds. In the 15 years under consideration, New York's share of research funding granted by these four institutes—the National Cancer Institute (NCI); the National Heart, Lung, and Blood Institute (NHLBI); the National Institutes of Allergy and Infectious Diseases (NIAID); and the National Institute of General Medical Sciences (NIGMS)—dropped from 15.2% to 10.8%

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**FIGURE 1** 1998 NIH research lost opportunity income for all New York institutions totals \$395 million. Difference between actual 1998 funding and funding if 1984 share had been maintained in 1998. (Source data from the National Institutes of Health IMPAC system.)

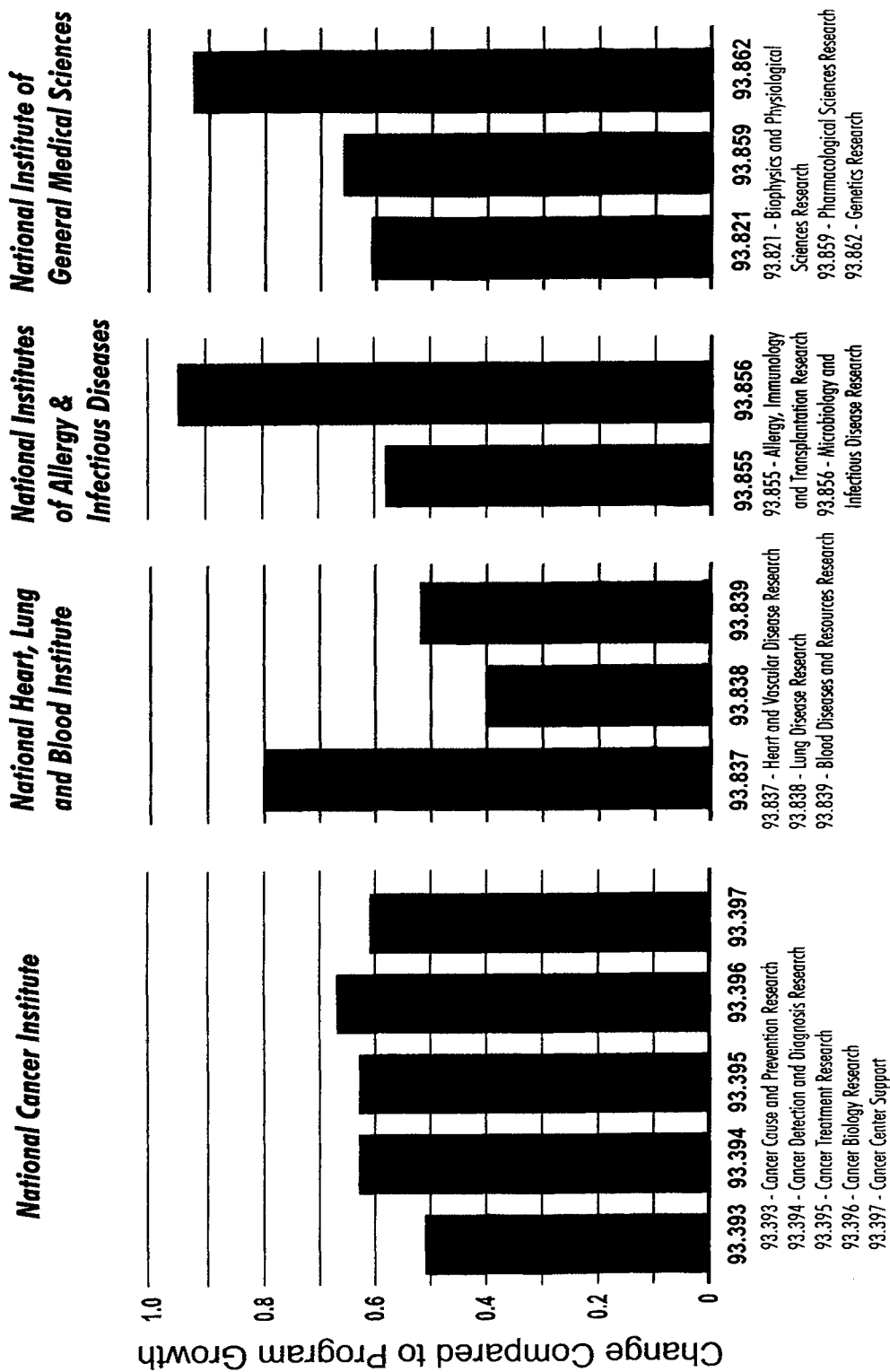
of their combined extramural support. In fact, New York's share of funding from all institutes but one declined.\*

In all, New York lost an estimated \$395 million in additional 1998 grant income by not maintaining its 1984 share of NIH funding to the 50 states and the District of Columbia (Fig. 1). Of this amount, \$230 million stemmed from deficiencies in funding from the four largest institutes. NCI alone accounted for one-third of the state's 1998 lost opportunity income.

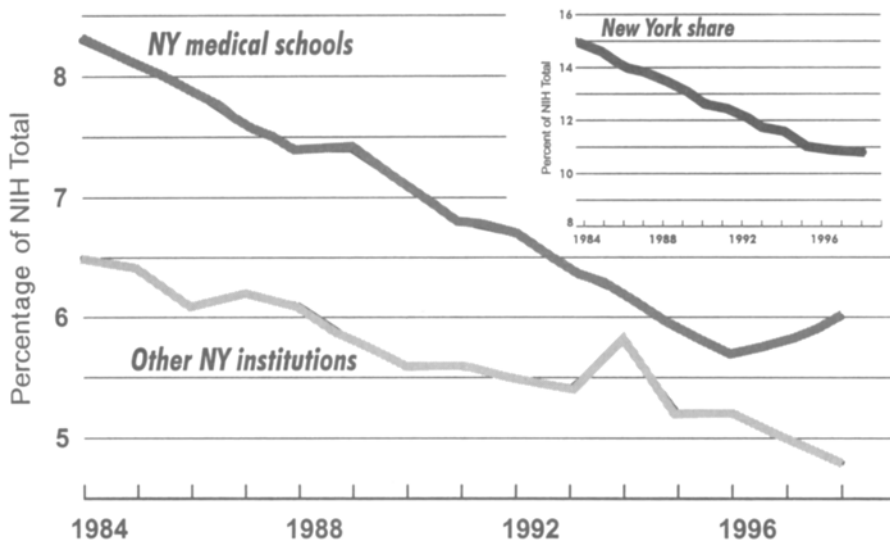
In the most recent year for which complete mortality data are available from the National Center on Health Statistics (1997), 38% of New York deaths resulted from diseases of the heart, while another 24% were caused by cancers. When deaths from reported diseases (AIDS, cancers, heart diseases, pneumonia and influenza, and chronic obstructive pulmonary diseases) that fall within the purview of the largest programs of the four largest NIH institutes were totaled, they accounted for 72% of all deaths in New York. Yet, New York is receiving a declining share of funding from these programs.

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\*New York's share of research funding from the National Institute on Alcohol Abuse and Alcoholism increased from 9.7% to 11.5%. Funding from the National Institute of Mental Health and the National Institute of Drug Abuse almost remained steady, declining 8% and 11%, respectively.



**FIGURE 2** Decline in New York's share of funding from largest institute programs, 1984-1998. (Source data from the US Census Bureau, Federal Assistance Award Data System [FAADS].)



**FIGURE 3** New York trends in NIH research grant support. (Source data from the National Institutes of Health IMPAC system.)

There were 12 programs\* in the four largest institutes that expended in excess of \$100 million each in 1998. From 1984 to 1998, New York's share of funding from each of these programs grew more slowly than did the budgets of the programs themselves (Fig. 2). For example, New York's share of funding from the Lung Disease Research program of NHLBI (93.838) declined by 60% between 1984 and 1998. New York's share of funding from most programs declined 40–50%. Only in two programs, Microbiology and Infectious Disease Research (93.856) and Genetics Research† (93.862) did the state's institutions approach the pace of growth in NIH program budgets.

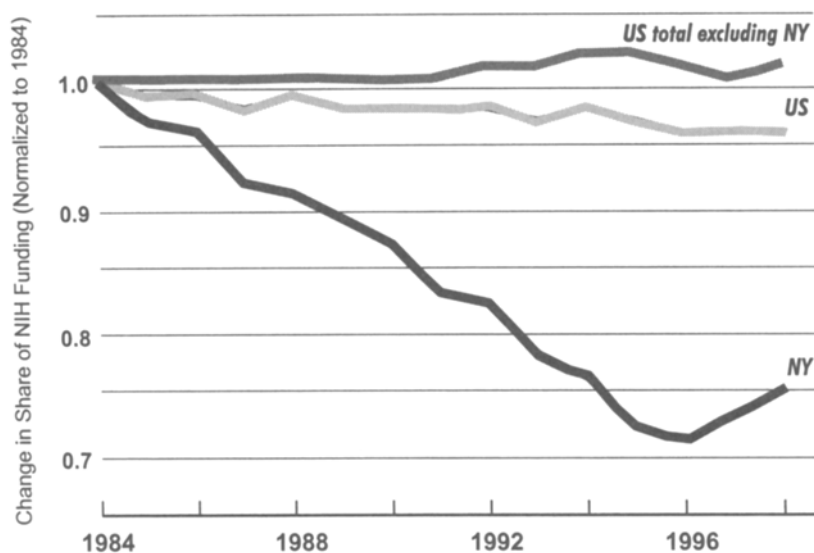
#### MEDICAL SCHOOL FUNDING PLUMMETS

Overall, New York's share of NIH funding slid from 14.9% to 10.8% (Fig. 3, inset). Throughout the period, the state's 12 medical schools‡ accounted for more

\*NIH receives congressional authorization to provide funding in the form of appropriation authority for numerous funding programs. Each program has its own subject matter, eligibility standards, and budget, as published in the *Catalog of Federal Domestic Assistance*.

†However, New York's share of funding from the National Center for Human Genome Research program (93.172), the other major NIH program that funds genetic research, is less than 5% of the total and ranks sixth among the states.

‡Albany Medical College, Albert Einstein College of Medicine, Columbia University, Cornell University, Mt. Sinai, New York Medical College, New York University, SUNY Brooklyn, SUNY Buffalo, SUNY Stony Brook, SUNY Syracuse, University of Rochester.



**FIGURE 4** NIH research funding to medical schools. (Source data from the National Institutes of Health IMPAC system.)

than half of all NIH research funding to its almost 200 institutions.\* Funding to New York medical schools slipped from 8.3% to 6.0% of the NIH research budget, a decline of 28% (Fig. 3). Other New York institutions experienced similar decline. In 1996, medical school funding may have “bottomed out,” but, the decline continued for other institutions and the state as a whole.

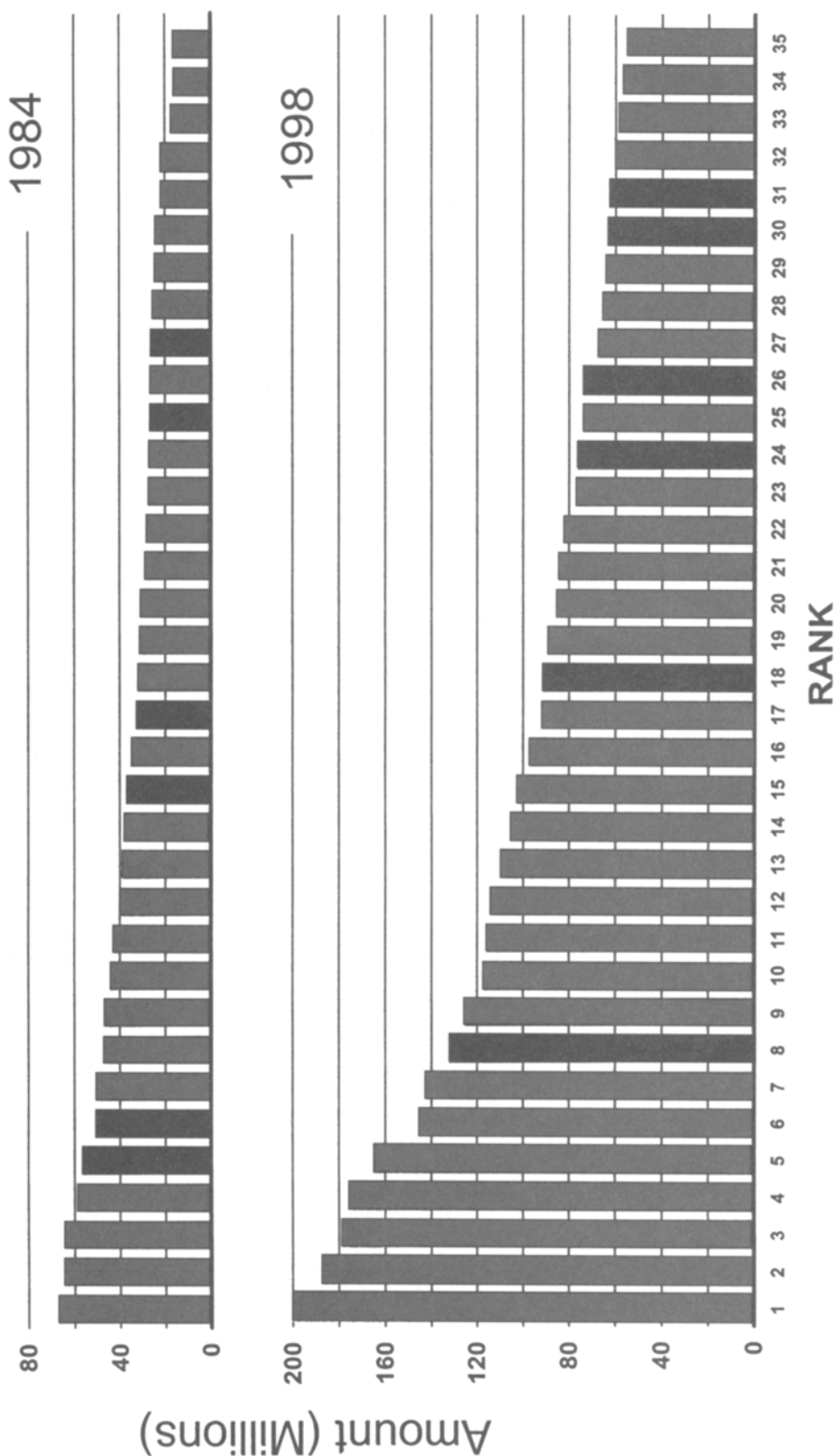
The overall share of NIH funding awarded to all US medical schools also appears to have fallen (Fig. 4). However, when New York’s schools are removed from the calculation, it is clear that national research funding to medical schools outside New York actually increased slightly.

The six largest institutions account for 85% of NIH research funding to New York’s dozen medical schools. Five of the six declined in NIH research funding rank among medical schools (Fig. 5).

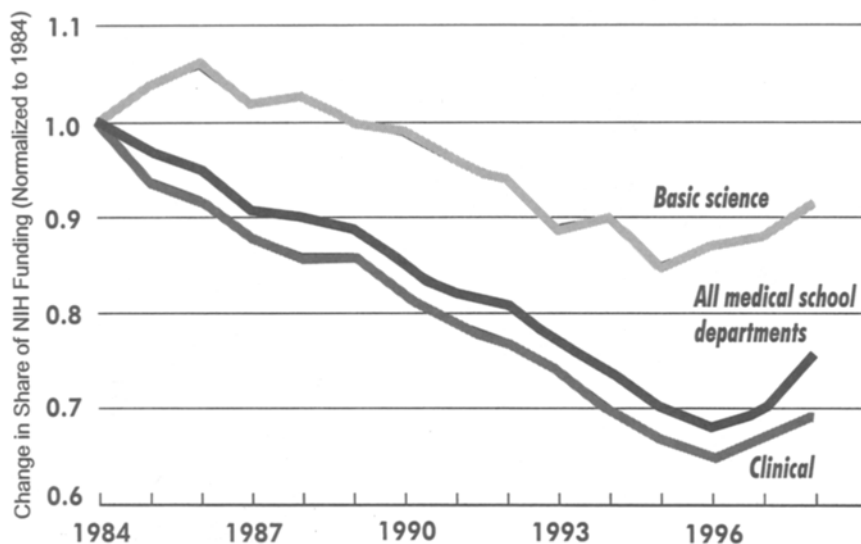
Medical school departments can be classified into preclinical (also called basic science) and clinical categories.† Clinical departments account for two-thirds of the NIH research funding to New York medical schools. Hence, the share

\*In the period 1984–1998, the amount of NIH research funding that was awarded to New York’s medical schools was substantial (Appendix). However, that funding failed to keep pace with growth in the NIH extramural budget, only increasing by three-quarters of the rate of national increase.

†Basic science departments include anatomy, biochemistry, cell biology, genetics, microbiology, pharmacology, and physiology. Departments of medicine, neurology, obstetrics and gynecology, ophthalmology, pathology, pediatrics, public health and preventive medicine, psychiatry, radiology and surgery were categorized as clinical.



**FIGURE 5** NIH research funding in 1984 and 1998 for the top 35 medical schools; the top 6 New York schools are in bold. All but 1 of 12 New York medical schools declined in rank during the period. (Source data from the National Institutes of Health IMPAC system.)



**FIGURE 6** Trends in NIH research grant support to clinical and basic science departments of New York medical schools. (Source data from the National Institutes of Health IMPAC system.)

of funding to the schools as a whole parallels that for the clinical departments (Fig. 6).

Departments of medicine are by far the largest of the clinical departments. In New York during this period, departments of medicine accounted for about 40% of all NIH research dollars for medical school clinical departments. While New York departments of medicine received 7.3% of US clinical research funding in 1984, they received only 4.2% in 1998 (Fig. 7), a loss of 42% of their share of NIH funding to clinical departments. As a result, the six largest all declined in rank (Fig. 8).

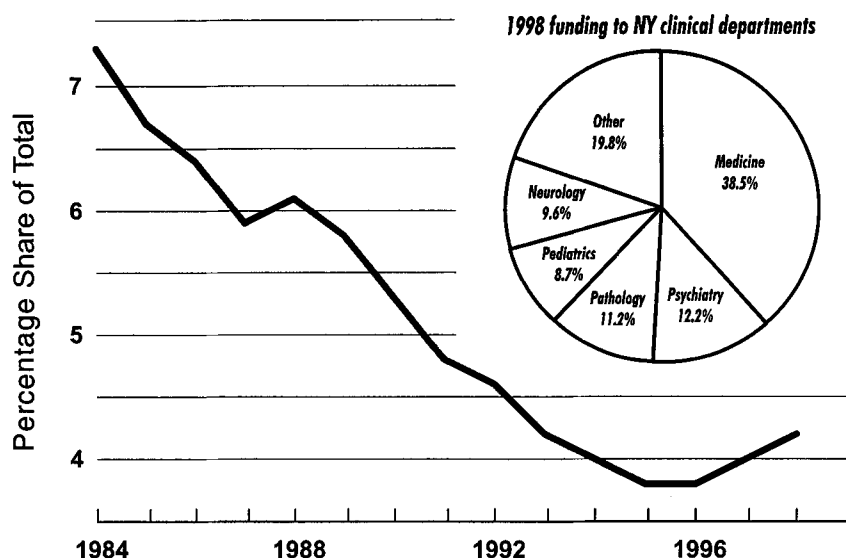
#### LOST FUNDING EQUALS LOST RESEARCH OPPORTUNITIES

NIH provides the majority of public funding for biomedical research in the US. According to one estimate,<sup>2</sup> it contributes over 80% of federal support for biomedical research.

Almost \$6 of every \$10 of the lost opportunity income of New York's biomedical research institutions can be attributed to its medical schools. Most (80%) of this \$225 million that should have gone to the medical schools in 1998 was foregone by the clinical departments. The majority (59%) of clinical lost opportunity income in New York, \$107 million, was lost by departments of medicine.

Based on the reported average size of a traditional R 01 award in 1998, (\$262,000),\* New York's medical schools should have received enough funding

\*NIH IMPAC system reported average size of a traditional R 01 project in 1998.<sup>3</sup>



**FIGURE 7** New York departments of medicine share of NIH research funding to US clinical departments. (Source data from the National Institutes of Health IMPAC system.)

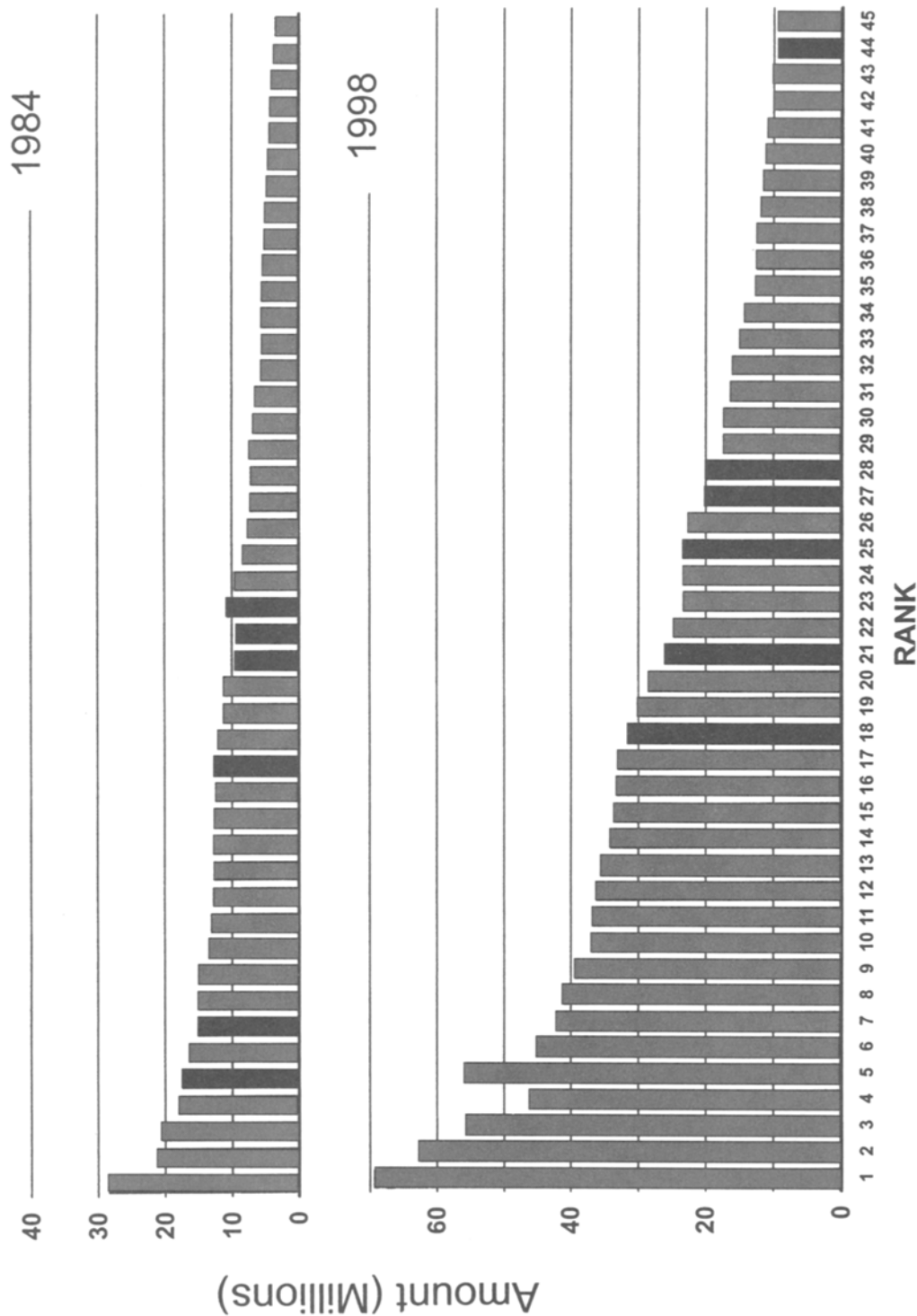
to pay for almost 900 additional projects in 1998 if they maintained their 1984 share of the NIH research budget. Almost 700 of these projects would have been obtained in the clinical departments, with over 400 of them in departments of medicine.

#### A TIME TO GROW

In this and our previous report,<sup>1</sup> NIH funding has been used as a measure of the size of the state's biomedical research enterprise. Another measure is the number of publications in basic science and clinical journals. Comparing the top three states in NIH funding by this criterion reveals that, between 1981 and 1996, the share of publications by New York biomedical scientists declined by 10%, while the share from California and Massachusetts increased by 14% and 26%, respectively.\*

The time is right for an expansion of New York's capacity to conduct funded research. The NIH budget is expected to double in the next 5 to 10 years. In 1998 alone, it increased by 15%. The state's number of biomedical scientists must grow if only to stabilize and maintain its existing share of funding. In the midst of

\*In 1981, the top three states in NIH funding (New York, California, and Massachusetts) produced 9,769, 10,486, and 5,735 publications, respectively, of a total of almost 75,000 for the top 12 states. By 1996, the numbers were 9,910, 13,500, and 8,153, respectively, of over 84,000, causing New York's share of basic and clinical papers to fall. Data were collected and analyzed for the New York State Health Research Council of the New York State Department of Health by CHI Research, Incorporated, in 1997.



**FIGURE 8** NIH research funding in 1984 and 1998 from the top 45 medical school departments of medicine; the top 6 New York schools are in bold. Departments of medicine declined in rank at all 12 New York medical schools during the period. (Source data from the National Institutes of Health IMPAC system.)

unprecedented national growth in biomedical research, New York's institutions would do well to follow a strategy of planned expansion, growing faster than the NIH budget in order to regain lost ground. Not to grow at this time is to accept further decline and the loss of opportunities to more prepared states.

#### ACKNOWLEDGEMENTS

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#### APPENDIX

##### NIH FUNDING TO MEDICAL SCHOOLS (\$ MILLION)

Year	US	NY	NY Basic Departments	NY Clinical Departments
1998	5217.2	585.3	201.5	372.1
1997	4778.5	524.2	177.6	334.7
1996	4469.5	473.5	160.7	304.8
1995	4270.3	462.7	147.0	303.6
1994	4122.4	470.9	150.6	307.5
1993	3898.2	457.5	141.4	308.4
1992	3817.3	470.0	147.4	315.0
1991	3527.8	441.3	140.1	295.5
1990	3228.0	417.9	131.1	279.8
1989	3052.3	410.2	127.2	276.7
1988	2797.9	379.2	122.3	251.4
1987	2574.6	355.5	112.5	236.2
1986	2177.2	312.9	102.5	204.1
1985	2098.8	306.2	96.5	201.7
1984	1812.8	271.3	80.2	185.2

\*Includes Albany Medical College, Albert Einstein, Columbia University, Cornell University, Mount Sinai, New York Medical College, New York University, SUNY Buffalo, SUNY Brooklyn, SUNY Stony Brook, SUNY Syracuse, and University of Rochester. (Source data from the National Institutes of Health IMPAC and CRISP data systems.)

#### REFERENCES

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